The purpose of this technical bulletin is to provide guidance to designers and constructors related to the City of Barrie’s changes to Fire Flow Requirements within the Water Transmission and Distribution Policies and Design Standard. These changes are being completed to ensure that the City’s requirements are inline with industry standards, such as Fire Underwriters and trends seen in similar Municipalities dealing with the effects of intensification.

Effective immediately, all newly submitted designs that will form a part of the City’s drinking water system must meet the following:

Changes for Section 4.3 Watermain Design Criteria are as follows:

1. Subsection 4.3.1 Flow Calculations

Specific fire flow demand shall be calculated according to the latest published requirements for the Water Supply for Public Fire Protection by Fire Underwriters Survey. Proposed Fire Flows less than minimums indicated would be subject to recommendation by a Professional Engineer and approval by the City.

The table below shows the values that the City previously specified that were required for Minimum Fire Flow compared to the new values the City is requesting for fire flow demand.

<table>
<thead>
<tr>
<th>Description</th>
<th>2020 Standard Update – Minimum Required Fire Flow (L/s)</th>
<th>2017 Standard Requirements – Minimum Required Fire Flow (L/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Residential Lots</td>
<td>70</td>
<td>Previously Not Specified</td>
</tr>
<tr>
<td>Residential</td>
<td>100</td>
<td>57</td>
</tr>
<tr>
<td>Townhouse</td>
<td>155</td>
<td>Previously Not Specified</td>
</tr>
<tr>
<td>Apartment</td>
<td>200</td>
<td>Previously Not Specified</td>
</tr>
<tr>
<td>High Rise Residential/Downtown/Mixed Use</td>
<td>-</td>
<td>Previously Not Specified</td>
</tr>
<tr>
<td>Institutional</td>
<td>200</td>
<td>91</td>
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<tr>
<td>Commercial</td>
<td>283</td>
<td>136</td>
</tr>
<tr>
<td>Industrial</td>
<td>333</td>
<td>136</td>
</tr>
</tbody>
</table>

Note: 1 - Subject to requirements of the Ontario Building Code  
2 - Refers to Buildings having a minimum of 3.0 meters of separation between buildings  
3 - Per Building Code and Fire Underwriter Requirements
2. Subsection 4.3.3 Minimum Watermain Sizing

The city will be adding the following information:

“Under special circumstances the City may limit the maximum watermain sizing to address anticipated water quality concerns, which may result in required revisions to the system from a fire flow perspective.”

3. Subsection 4.3.1 Additional Changes – Desirable Minimum MDD Pressure

The City is looking for a desirable minimum MDD pressure of 350 kPa (50 psi). However, the desirable range under normal conditions would be 350 kPa (50 psi) and 485 kPa (70 psi).

This change will effectively ensure that there is adequate water pressure within the system to fight fires of all degrees.

Changes for Section 4.4 Watermain Layout and Installation are:

4. Subsection 4.4.10 Termination of Watermains

There are two changes the City is implementing in this area:

- Addition of a maximum 3-day turnover requirement for all distribution mains that terminate in a dead end under Average Daily Usage; and,
- Installation of a hydrant and/or auto flushing device(s) to address temporary water quality concerns for phased construction and/or permitted dead ends.

5. Subsection 4.4.1 Watermain Location within Right-of-Ways

The City will be adding the requirement that if a watermain for domestic use cannot meet turnover in 3 days then two separate supply feeds are required, one to provide water for domestic use and one to provide water for fire flow.

For condominium project that require two separate supply feeds for water, the feeds are to be metered at the property line and a check valve is to be placed on the fire main. An above ground heated chamber shall also be placed at the property line. The City will be issuing a BSD depicting this information.

Changes to Section 4.8 Hydrants

6. Subsection 4.8.1 Hydrant Spacing in Rights-of-Way

The City’s changes are as follows:

- Different spacing requirements for multi-family residential and single family residential
- Maximum hydrant spacing for ICI (industrial, commercial and institutional) and multi-family residential areas is 90 metres as per Water Supply for Public Fire Protection, FUS, 1999
- Single Family residential area the maximum hydrant spacing is 150 metres.

It should also be noted that this maximum spacing may need to be reduced depending on the Fire Underwriter Study Fire Flow Requirement for any particular development (subdivision/site plan).

Michael Munshaw
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